MINI COLOR SERIES 7507

# Russia's BMP

## Infantry Combat Vehicles

Steven Zaloga and David Markov

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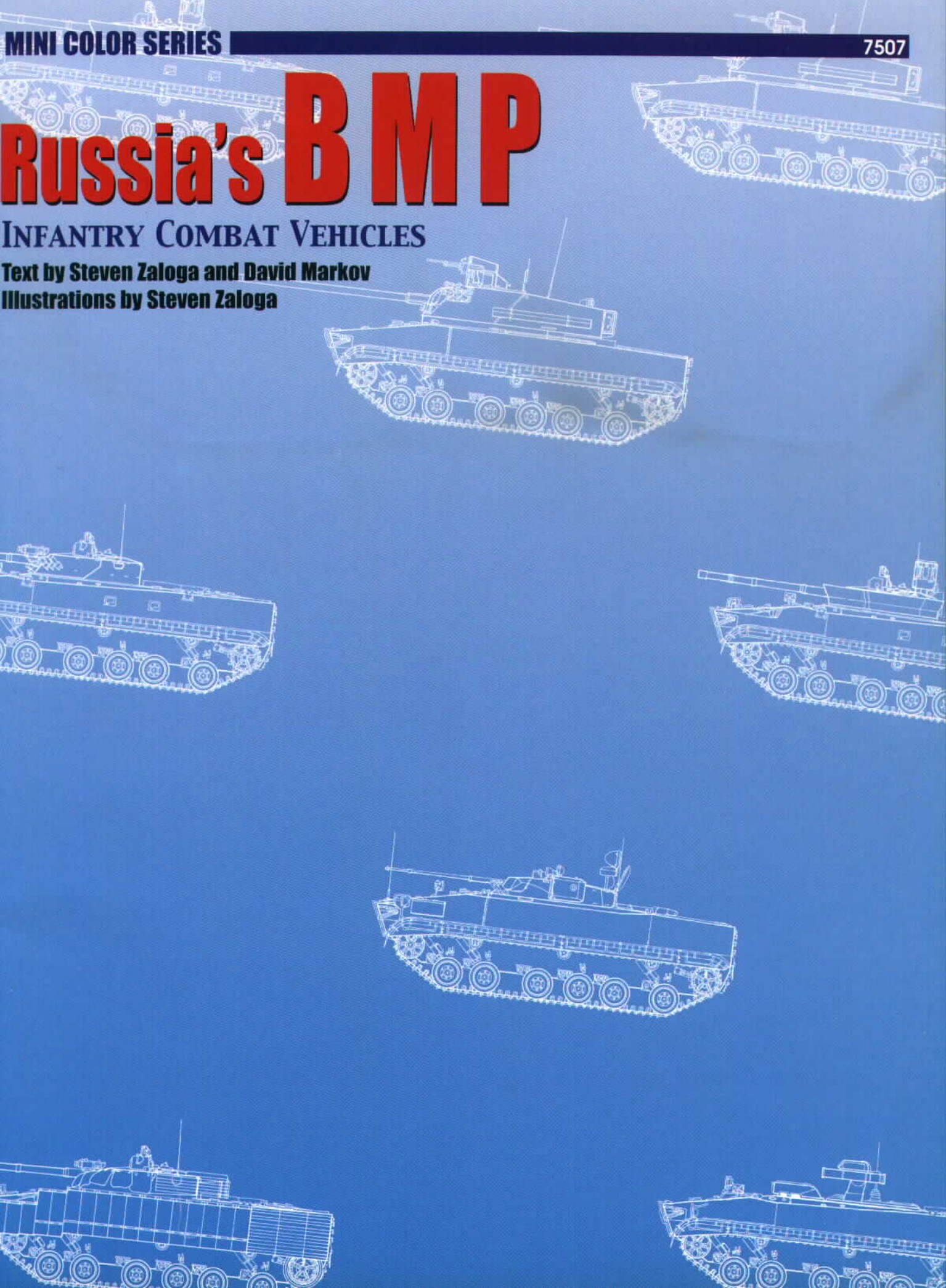
Text by Steven Zaloga and David Markov
Illustrations by Steven Zaloga



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# INTRODUCTION

This book is a follow-on to an earlier Concord book, BMP Infantry Combat Vehicle (1006) that was first published more than ten years ago in 1990. It brings the story up to date with coverage of the latest versions of Russia's formidable BMP infantry combat vehicles.

Although the new BMP-3 is beginning to replace the earlier types, the BMP-2 is still in production in Russia as well as in some other countries, notably India. India continues to manufacture the BMP-2 as the Sarath, and is developing a wide range of specialized versions. The large number of BMPs in service around the world have led to quite a bit of interest in modernization packages. Some of the more intriguing types are shown here. The end of the Cold War has led to a surplus of armored vehicles, and even countries such as Sweden are now operating the BMP.

The BMP-3 first appeared in public in 1990 and was quite a surprise to western observers. Although similar in size to other infantry fighting vehicles, the BMP-3 was considerably better armed, equipped not only with a 30mm auto-cannon, but with a 100mm rifle low pressure gun that can fire high explosive projectiles and guided anti-tank missiles. The Obiekt 688 prototype entered trials in 1981 with a more conventional armament. In the meantime, a radical new armament system consisting of a 2A70 rifled 100mm gun paired with a 2A72 30mm autocannon was developed and mounted on a modified Obiekt 688. Besides firing conventional ammunition, the 100mm gun can also launch the 9M117 laser-beam riding missiles. These are employed in lieu of the external missile launcher found on the BMP-1 and BMP-2. The modified Obiekt 688 with the new 2K23 armament package was subjected to operational trials in Uzbekistan and the Siberian Military District in 1986. This powerful armament was the subject of considerable controversy in the army, with many officers arguing that it was far too much for an infantry vehicle. Because of the large turret, the infantry squad seating is clumsy: the section light machine gunners on either side of the driver in the hull front and five additional riflemen in a compartment immediately behind the turret. Infantry exit is awkward: the two sets of rear doors must be opened, and the section exits along a narrow alleyway between the fuel cells and engine radiator. But in 1987, the Soviet Army accepted the modified Obiekt 688 for service as the BMP-3.

The BMP-3 entered production very slowly, and at the time of the Soviet Union's break-up in December 1991, there were only 35 deployed in all of the European USSR and in 1997 there were only 26 in service in western Russia, with Ukraine operating 4 more. The actual total number of BMP-3s in Russian service is somewhat higher, as they are mainly deployed in Siberia where they do not fall under treaty counting rules. But there are probably less than a hundred in Russian service even today.

Even if the BMP-3 has been less than a smashing success in Russian service, it has proven to be a popular export item. A total of 576 have already been ordered by four countries. The largest single order was from the United Arab Emirates for 448 vehicles of which 414 were delivered in 1993-1997. The UAE BMP-3s are significantly different from the standard Russian vehicles as the photos here show. They have insulation applique on the vehicle roof, an air conditioning system, and an improved fire control system including a French Namut thermal imaging sight. Cyprus has received 43 BMP-3 infantry vehicles in 1995-96 along with T-80U tanks, and Kuwait has received 55 BMP-3s. South Korea is one of the more unusual customers, having ordered 30 BMP-3s along with a small number of T-80U tanks as a method to reduce Russia's large debt.

The BMP-3 has undergone continual upgrades during its production run. Some of these are evident on the photos here. The Russian army vehicles in Siberia shown here are from the original 1987-89 production batches and have many small detail changes compared to later vehicles. In 1998, the BMP-3M was first unveiled. This uses an improved fire control system, as well as an up-rated UTD-32 engine. Besides the BMP-3 infantry vehicle, there are a number of specialized vehicles based on the chassis. The BMP-3K is a command version of the BMP-3 and has additional communication equipment. The BRM-3 Rys (Fox) is a reconnaissance version with a reconfigured turret and hull. It is armed with a single 30mm cannon, but is fitted with a more extensive array of sensors including a turret mounted radar. The BREM-L Beglianka is a light armored recovery vehicle intended to support BMP-3 units in the field. The 2S31 Vena is a novel 120mm self-propelled gun using an unusual gun/mortar weapon. There are two tank destroyer versions using two different types of anti-tank missiles, the smaller 9P162 Kornet, and the larger 9P157 Krizantema. The Vostorg is a combat engineer version with a bulldozer blade and heavy lift crane.

**BMP-3 Technical Data**

| | |
|---|---|
| Crew | 3 |
| Infantry section | 7 |
| Combat weight (metric tons) | 18.7 |
| Power to weight ratio (hp/T) | 25.0 |
| Ground pressure (kg/cm$^2$) | 0.6 |
| Length (m) | 7.2 |
| Width (m) | 3.15 |
| Height (m) | 2.3 |
| Ground clearance (m) | 0.19-0.51 |
| Max road speed (km/h) | 70 |
| Max range (km) | 600 |
| Gradient (%) | 60 |
| Vertical obstacle (m) | 0.8 |
| Trench (m) | 2.2 |
| Engine type | UTD-29 |
| Horsepower | 500 |
| Main armament type | 100mm 2A70 rifled low pressure gun |
| Gun elevation | -6° to +60° |
| Gunner's sight | 1K13-2 |
| Secondary weapon | 30mm 2A72 autocannon |
| Co-axial machine gun | PKT 7.62mm |
| Main gun ammunition | 40 |
| Machine gun ammunition | 6000 |
| Missile | 9M117 |
| Missile stowage | 6-8 |
| Missile launcher | 2A70 |
| Smoke mortar | Tucha type 902V |
| Turret armor (max., mm) | 26 |
| Hull armor (max.) | 19 |
| Radio | R-173 |
| Unit cost (1992, export) | $800,000 |

# The BMP-1 and BMP-2

On first glance this appears to be an old BMP-1. In fact, it is a somewhat more unusual member of the BMP-1 family. In the late 1990s, Sweden bought 350 old East German BMP-1 at bargain basement prices. From these, 176 were rebuilt by VOP 26 in the Czech Republic as the Pbv 501 to serve in Swedish motorized infantry units. This is the first of the completed Pbv 501 on display in Brno in the Czech Republic before being handed over the Swedish Army.

With so many old BMP-1 still in service around the globe, there is considerable interest in modernizing them with better guns and anti-tank missiles. This is a Russian proposal based around the Kliver turret which is fitted with a new 30mm 2A72 autocannon and the new Kornet anti-tank missile. The Kornet can be fitted with either an anti-tank or thermobaric fuel-air explosive warhead, so can be used to attack a wide range of targets.

The Kliver turret is being offered to the Russian Army as well as export clients as a way to redeem old BMP-1 hulls with a more effective weapon station.

The Czech Republic is considering rebuilding its old BMP-1 combat vehicles, and replacing the 73mm gun which NATO considers to be unsafe. This proposal, the BVP-1MA, replaces the entire turret with a new German Kuka E8 turret with 30mm Bushmaster II gun and many other small improvements.

The Czech Army developed its own equivalent of the Russian BRM-1 reconnaissance vehicle, called the BPzV. This is basically a BMP-1 with added radar and electro-optical sensors. The PSNR-5K radar can be seen above the turret. This is a vehicle of the Czech 4th Rapid Deployment Brigade. (Josef Spurny)

Another view of a BPZV of the Czech 4th Rapid Deployment Brigade. The electro-optical day/night sight is in the pod evident immediately below the 73mm gun barrel. (Josef Spurny)

Poland has been considering the modernization of its old BMP-1 vehicles with a variety of new turrets. The Stalowa Wola Plant originally began a cooperative development effort with Bofors in Sweden around 1994 to modernize Polish armored vehicles. One of its programs was the development of a new 40mm gun turret, based around the Bofors L/70 40mm gun, which is used on a version of the BMP infantry vehicle called the BWP-40. (Wojciech Lucak)

The Polish firm Stalowa Wola also proposed the uparmored BWP-95 variant using the Cerawa-1 reactive armor developed by the Military Institute of Armament Technology (WITU) in Zielonka. This would remove the BMP-1's 73mm low-pressure gun and replace it with an externally mounted 23mm cannon as well as a supplementary recoilless rifle. (Wojciech Luczak)

Poland had a relatively small number of BMP-2 in service and so decided to export them to earn money for its tank research program. This is one of them, in the new NATO pattern paint scheme with a regimental insignia on the turret. Poland sold off 50 BMP-2 to Angola in 1994 and 20 more to Togo in 1997. (Wojciech Luczak)

One of the rarest of the BMP variants is the PRP-4M Deyteriy artillery reconnaissance vehicle. This vehicle is used by artillery forward observers to locate targets and provide targeting data back to self-propelled artillery units. This particular vehicle is used by a Russian unit in the Siberian military district.

This rear view of the PRP-4M shows its similarity to the basic BMP-1 chassis. However, there are no firing ports on the hull side. The camouflage pattern on this vehicle is typical of local improvisations which have become more common in the Russian Army in the 1990s.

This overhead view of a PRP-4M turret show the distinctive features of this type, including the two electro-optical sensor ports on either side of the turret, and the hatch at the rear of the turret which hinges open to permit a small Kredo-1 battlefield surveillance radar to deploy. The vehicle's only armament is a single PKT machine gun for self-defense in the mount at the front of the turret.

Elaborate camouflage schemes began to appear on Soviet armored vehicles shortly before the 1991 dissolution of the USSR. This is a BMP-2 of the Soviet Group of Forces Germany being withdrawn in 1994 from the Berlin area. It is painted in a scheme of medium gray and red brown over the usual dark green, and carries a prominent Russian flag on the turret side (Michael Jerchel)

The BMP-2 has been widely used in combat, including both the first and second Chechen wars. This is a BMP-2 of an Interior Ministry unit in Grozniy during the first Chechen war.

In the late 1980s, the Soviet Army began adopting a camouflage scheme somewhat resembling the US Army MERDC scheme. It consists of sand-gray and black over the usual dark green. This is a BMP-2 of a Russian motor rifle regiment on display in Siberia in the late 1990s showing a variation of this scheme. This is a late production BMP-2 with the appliqué on the turret sides and roof.

This is a view of a BMP-2 on exercise outside Omsk in Siberia in 1997. It is a late production vehicle with turret appliqué and the reinforced suspension. The photo emphasizes the ability of the 2A42 30mm autocannon to be elevated up to seventy-five degrees, a features designed to permit it to engage helicopters.

A good study of the same BMP-2 near Omsk. It is seen here with the usual 9M113 Konkurs (AT-5) anti-tank missile fitted in the silver launch tube. The silver tubes indicate a training round; the combat rounds are in the usual dark green.

A BMP-2 crests a rise while on exercise near Omsk in 1999. Behind it is the new member of the family, the BMP-3.

A BMP-2 with a Russian motor rifle unit in Siberia in 1997 showing the two access doors at the hull rear. These double as fuel cells.

Although the BMP-3 is now in production at Kurgan, the BMP-2 is still being offered for sale. This is the current configuration of the BMP-2 for export, shown in desert camouflage during a display to the United Arab Emirates in 1997. The insignia on the turret is the Rosvooruzhenie export organization's crest.

This rear view of the current BMP-2 export vehicle shows one of the key features of the modernization package, the new AG-17 30mm grenade launcher on the left rear of the turret along with an ammunition tray curving along the rear of the turret. The Russian Army has shown much more interest in automatic grenade launchers like these after its experiences in urban warfare in Chechnya.

This is a close-up of the AG-17 grenade launcher on the modernized BMP-2. The bar below is an articulation arm for the grenade launcher to permit the turret crew to elevate the weapon.

The modernized BMP-2 can be fitted with the uprated UTD-23 turbocharged diesel engine which gives it better performance as demonstrated here on an obstacle course.

One of the most seldom-seen BMP variants is the BREM-2 armored recovery/maintenance vehicle. This is fitted with a 1.5 ton jib crane and a winch for work on light armored vehicles. This vehicle is in service with a Russian unit in Siberia and is painted in a local scheme of sand/green and black over the usual dark green.

Another view of the BREM-2 shows the jib crane and the work platform mounted on the rear of the vehicle. As in the case of the BMP-2, it is fitted with the wider mud guards which provide added buoyancy in water.

With the BMP-2 chassis still in production in Russia, some new specialized versions have been developed. One of the most recent is the RM-G tracked recovery vehicle. This is fitted with a 3 ton KU-3 crane, and has a variety of other repair equipment on board.

This side view of the RM-G shows the higher superstructure of this recovery variant. This is intended for heavier duty tasks than the older BREM-2 design.

A rear view of the RM-G on display at an arms exhibit in Omsk in 1998 provides a good view of the added superstructure at the rear.

The availability of surplus BMP-2 chassis has led to their modification for civilian roles. This particular example is intended for forest fire fighting units with a work platform on the rear for equipment, and a plow for creating fire breaks.

The BMP-1 is widely regarded as being obsolete, so the Czech Army has been considering rebuilding some of there vehicles for other roles. This is one proposal, a light artillery reconnaissance vehicle on a modified BMP-1 chassis. The gun is plated over, an electro-optical sensor package is fitted on an elevating mast. This is intended as a cheaper alternative to the Snezhka.

The Czech Republic also has manufactured the BMP under the local designation of BVP. One of the most sophisticated new variants is the Snezhka, a dedicated artillery forward observer vehicle. The elevating mast is fitted with an electro-optical sensor and radar, which can be elevated over trees or other obstructions for long-range observation. The large crew compartment in the rear has led to the extension of the hull.

The extended hull BMP used for the Snezhka is also being used for other special purpose vehicles. The AMB-S is a mobile communication relay station used in BMP-2 mechanized battalions to interconnect command posts and other communication sites. Besides carrying a DTP-40 tactical switching set, it also carries a R-150S and R-1325 radio complex.

# India's BMP Sarath

One of the largest manufacturers of the BMP-2 today is India, which builds it under license at the new Shankarpally Ordnance Factory in the Medak district of Andrha. In India, the BMP-2 is known as the Sarath, meaning Chariot of Victory. This Sarath is painted in the unusual Indian camouflage pattern which consists of small geometric shapes painted over the usual dark green finish. The yellow circle on the engine deck is an air recognition sign. (Wojciech Luczak)

Another view of an Indian Sarath, named Sindhu Durg. It carries a British-style white squadron marking on the turret rear. The regimental crest is a yellow shield seen on the rear access door. (Wojciech Luczak)

A side view of Sindhu Durg shows India's unique camouflage scheme. In this case it consists of red brown and sand gray patches over a dark green finish, but on some vehicle, additional colors are added. (Wojciech Luczak)

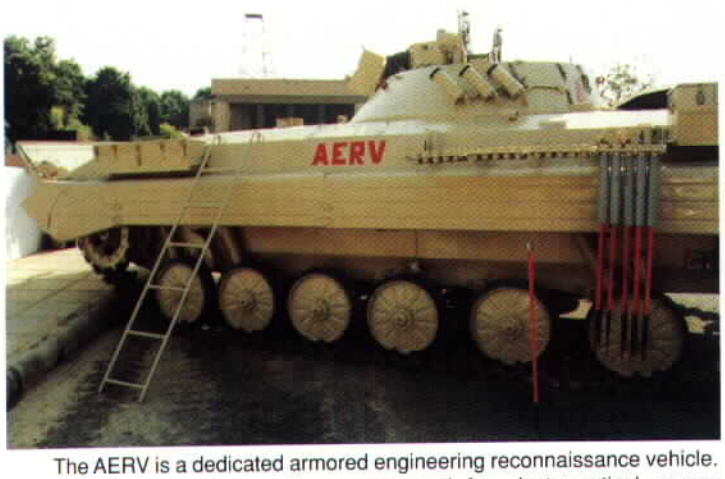
This is an example of the more elaborate pattern that the Indian camouflage sometimes takes. Besides the basic dark green color, the vehicle has bands of sand-gray spray-painted. Then the geometric shapes are added. (Wojciech Luczak)

India is building a wide variety of BMP derivatives for special purpose applications. This is the Namica, a tank destroyer that is designed for India's indigenous Nag anti-tank missile. The Nag (Snake) missile is fired from the elevated armored box launcher seen above the vehicle which also contains the guidance package. (Wojciech Luczak)

This rear-view of the Namica shows the enlarged superstructure at the rear, along with the vents for the added electrical equipment. (Wojciech Luczak)

The AAO is a dedicated combat engineer derivative of the Sarath. At the front are mine rakes, while at the rear is a folding dozer blade. (Wojciech Luczak)

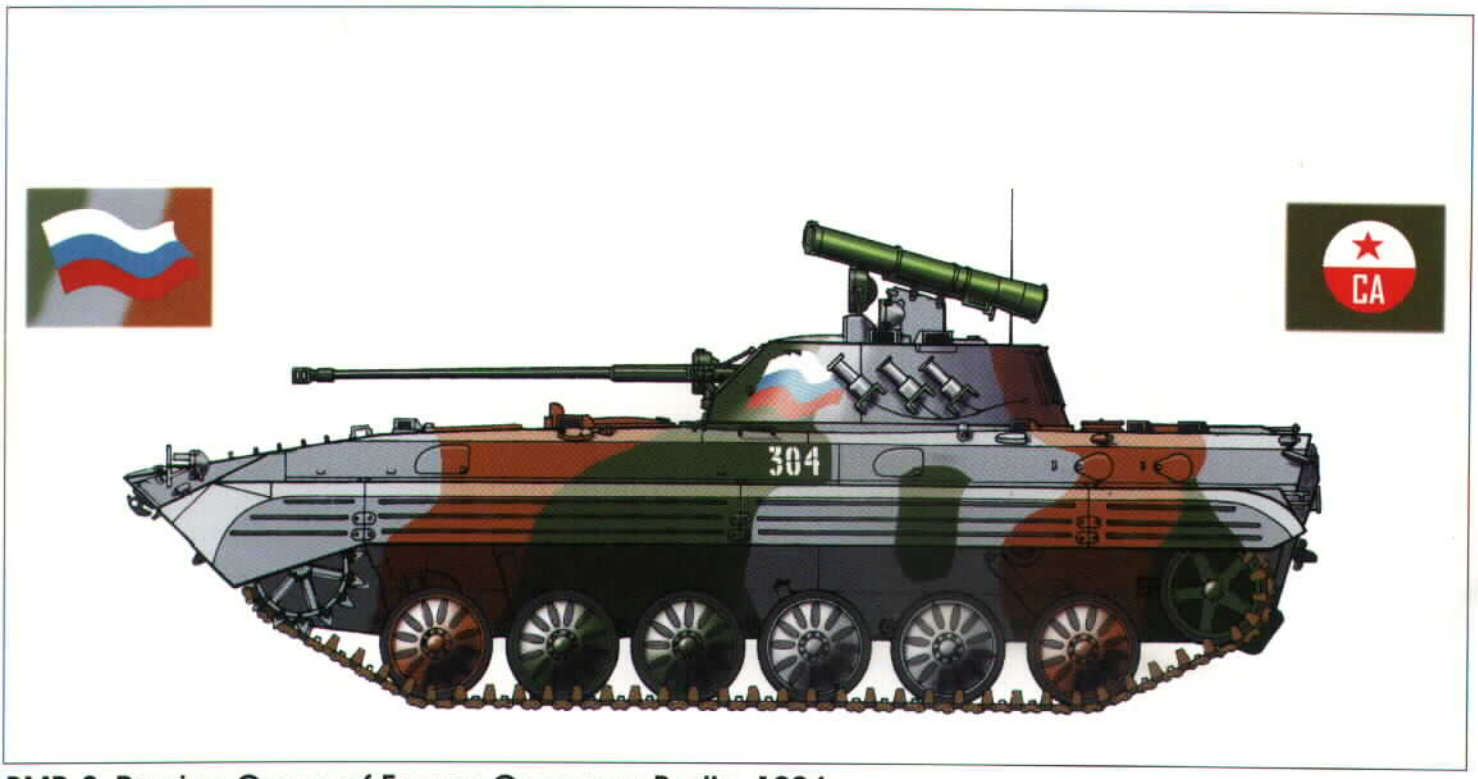
This front-view of the AAO shows the locally-developed mine rakes. This dig into the ground, and push aside the exposed mines rather than detonating them. (Wojciech Luczak)




The AERV is a dedicated armored engineering reconnaissance vehicle. The gun is removed, and the space used for electro-optical sensor equipment. The devices on the side are minefield markers which are used to mark cleared lanes created by the AAO vehicle. (Wojciech Luczak)

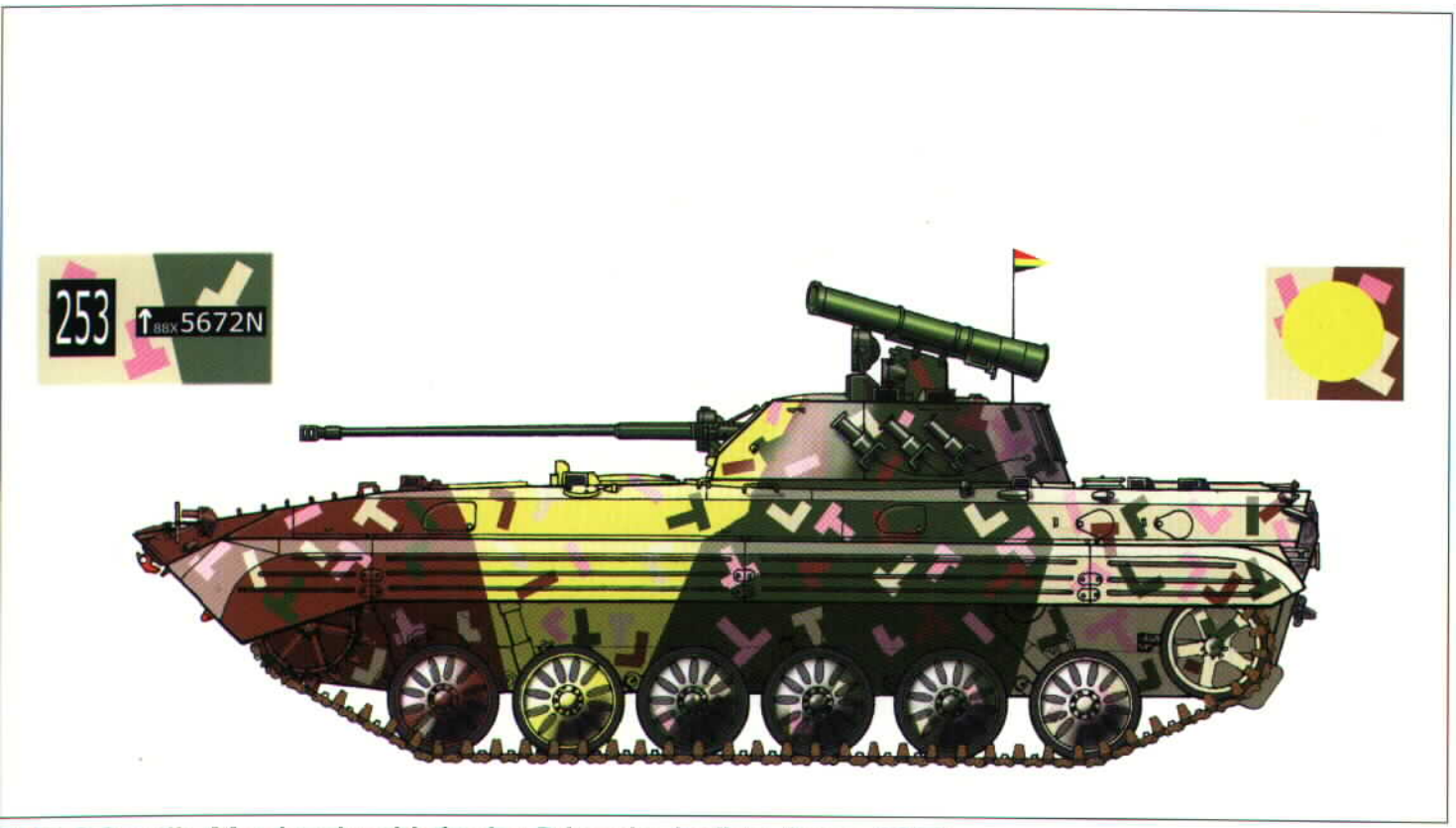
India is also beginning to manufacture a dedicated 120mm mortar derivative of the Sarath. As seen here, the mortar is contained in the center of the vehicle instead of the usual turret, with two hinged doors above. (Wojciech Luczak)

Another Sarath derivative is this armored ambulance. The gun has been removed from the BMP-2 turret, and the rear has been modified to carry four litter cases plus a medical detachment.



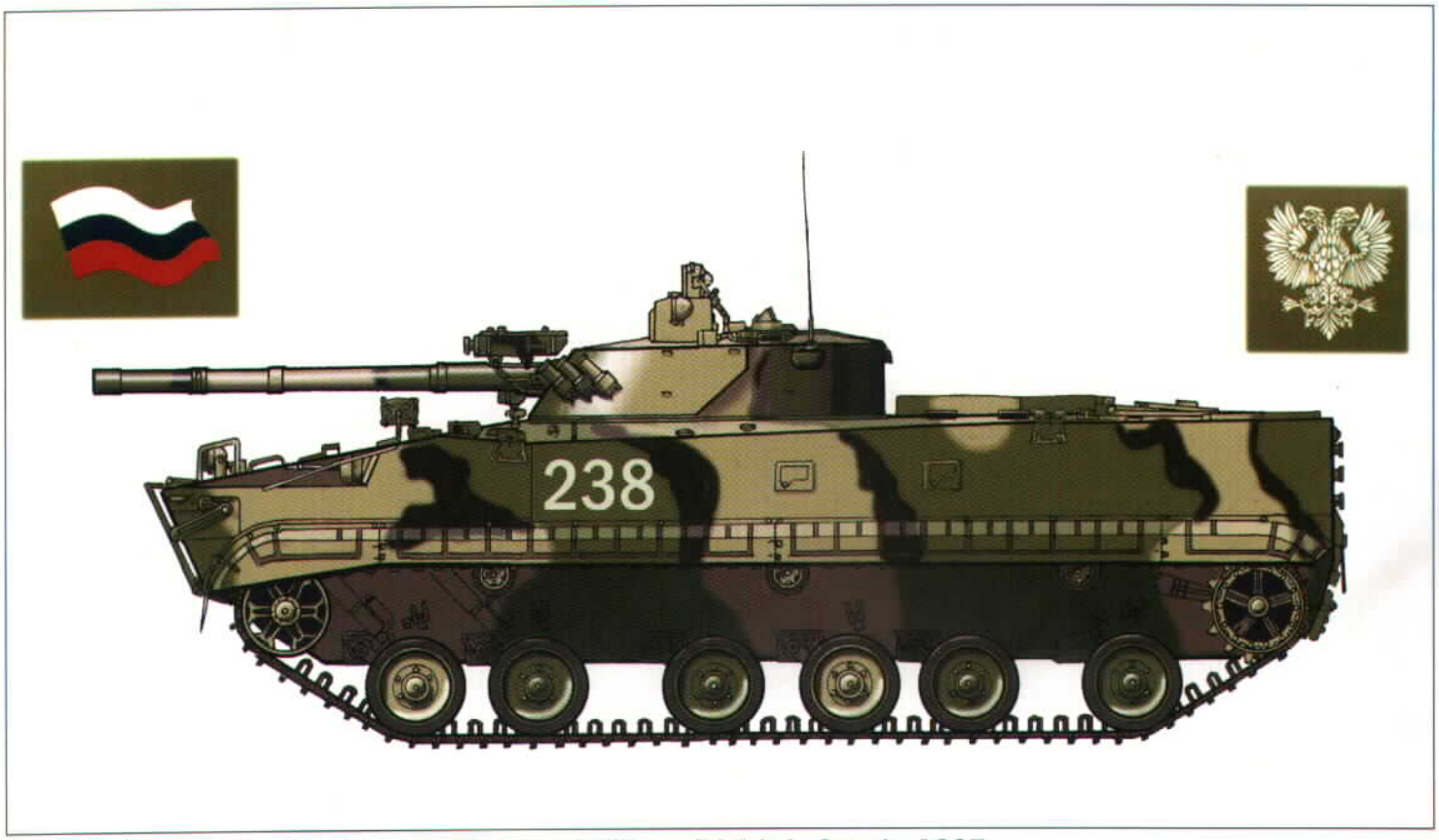

## BMP-2, Russian Group of Forces Germany, Berlin, 1994

During the pull-out of the Russian Army from Germany in 1992-94, a number of departing units painted their vehicles in more elaborate camouflage and markings than was normally the practice. In this case, this tank regiment added bands of blue-gray and red-brown over the usual dark olive green (*zeleno-zashchitniy*) camouflage color. They also marked the tanks in the new Russian tri-color flag to distinguish themselves from the former Soviet Army. The other inset marking is the former Soviet Army Group of Forces marking. This was more commonly seen on unarmored vehicles, but was occasionally seen on armored vehicles as well.



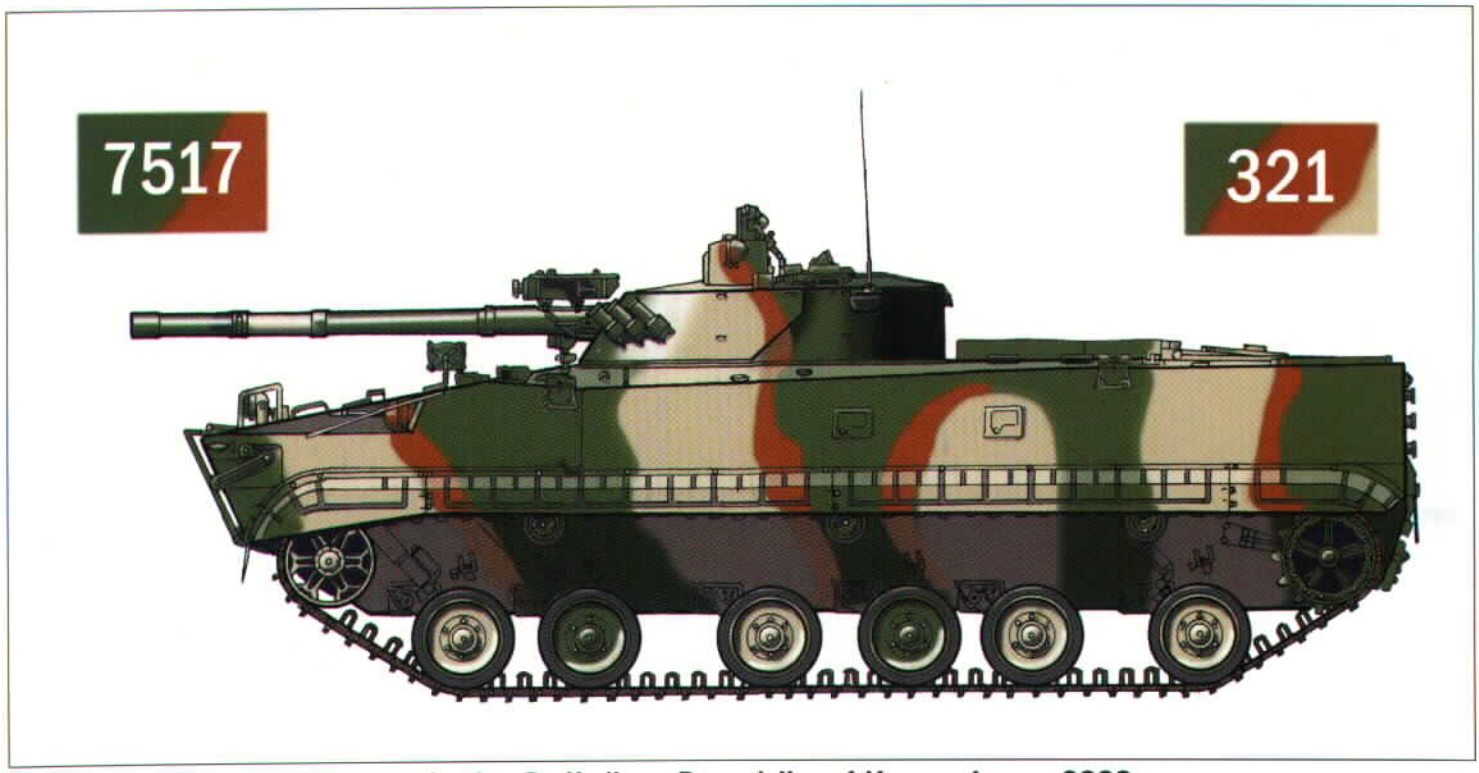

## BMP-2 Sarath, Mechanized Infantry Brigade, Indian Army, 2000

The Indian Army paints some of its armored vehicles in an unusual camouflage scheme consisting of small geometric shapes over the basic camouflage. This is one of the more elaborate examples. The basic camouflage consists of bands of red-brown, pale yellow, dark green, and sand-gray. On top of these bands are the geometric shapes, with three colors of shapes on each base color. The inset markings show the infantry regiment square and registration number on the left, and yellow air identification insignia on the right. The identification insignia is usually carried on the engine deck and is about three feet across. The Indian Army often paints tow hooks, grease nipples and other parts in red, especially for parades.




## BMP-3, Motor Rifle Regiment, Siberian Military District, Omsk, 1997

In the mid-1980s, the Soviet Army adopted a new three color camouflage scheme similar in appearance to the US Army's 1970 MERDC scheme. The new pattern used a special paint developed by NII Stali which reduced the probability of detection to electro-optical sensors operating in the near infrared bands. The three colors in this pattern are dark olive green (*zeleno-zashchitniy*), yellow-gray (*sero-zheltiy*), and black (*cherniy*). This vehicle carries the three digit white bort (tactical) number on the hull side. The inset drawings show two of the national insignia which are seen on some Russian vehicles, especially during parades or demonstrations. On the left is the traditional Russian imperial eagle, while to the right is the Russian flag. Note that the flag shown here uses a royal blue rather than the medium blue seen on the BMP-2 in the first plate.




## BMP-3, 90th Mechanized Infantry Battalion, Republic of Korea Army, 2000

South Korea's 30 BMP-3s are used by the 90th Mech. Inf. Battalion near Kwandzu. They were delivered in a scheme somewhat similar to the standard Russian scheme, except that a red-brown has been substituted for the usual black. The ROK markings are very simple, consisting of two sets of numbers on the bow plate in white, repeated on the rear, and shown here on the inset drawings.

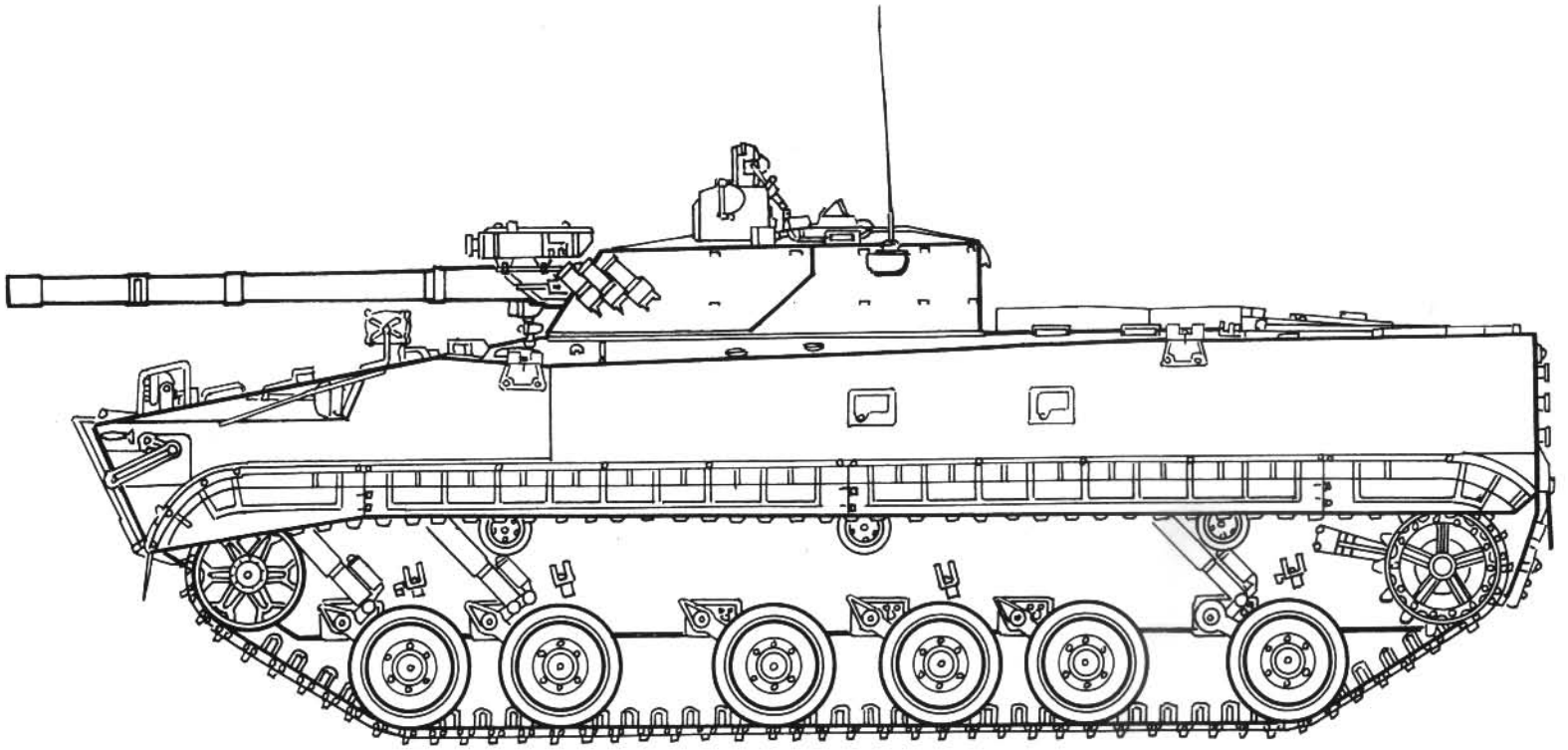
# The BMP-3

The initial version of the BMP-3, called the Obiekt 688, was based on the Obiekt 685 light tank. This vehicle used a conventional armament system, resembling that on the German Marder 1 with an externally mounted, elevated 30mm gun, and a pair of anti-tank guided missile launchers. It was completely reconfigured before entering production.

When it finally entered series production, the turret configuration of the BMP-3 had completely changed. Its armament now consisted of the new 2K23 armament system which included 100mm 2A70 gun/missile launcher with a co-axial 2A72 30mm cannon. This gave it the firepower of a light tank. Behind it is a BMP-1 and a 2S9 Nona.

Shortages of supplies have led some Russian units to substitute local paint for standard army colors as seen on this BMP-3 in a Siberian motor rifle regiments. A sand-green color has been used instead of the more common sand-gray. Most of Russia's BMP-3s are in service in Siberia.

# 1/35 BMP-3



The standard factory paint scheme for the BMP-3 is this three tone scheme of sand-gray and black over dark green. This is a BMP-3 of a motor rifle regiment near Omsk in Siberia.

A rear view of a BMP-3 in Siberia. The BMP-3 has an unusual configuration with the engine mounted in the rear floor, with a covered walkway from the rear into the central troop compartment. When the rear access doors are opened, two steps are folded down to make it easier for the crew to enter and exit. Careful inspection of the side will reveal two small ports on the hull side for the infantry to fire their assault rifles. Russian tactics however stress the use of the vehicle's considerable firepower rather than that of the mounted infantry squad.

A BMP-3 on exercise in Siberia in 1997. The continued use of infrared searchlights on Russian armored vehicle is due to continuing problems in series manufacture of passive thermal imaging night sights. Although Russia has begun to manufacture such night sights, their cost has led to their use primarily on tanks.

The BMP-3 is a fast vehicle for its size, being capable of up to 70 km/h (45 mph). The vehicle's fuel is stowed in the bow, which actually serves as a form of secondary protection from frontal hits since diesel fuel is resistant to fire. The weapons are elevated to prevent them from striking the ground during vigorous automotive displays.

The BMP-3 is fully amphibious and is seen here exiting a water obstacle. The silver cylinder evident on the hull roof is the engine snorkel which is raised when in the water to prevent water ingestion.

## Export BMP-3

The largest single operator of the BMP-3 is the UAE (United Arab Emirate) Army which has ordered about 450 vehicles. This is the pilot model of the modified UAE configuration in a plain sand camouflage scheme. (Christopher Foss)

The series production UAE BMP-3 are finished in a two-color scheme of pale sand and pale cocoa brown. As can be seen from the trucks in the background, this scheme is used throughout the UAE Army.

This view of a UAE BMP-3 shows one of the distinguishing features of this version- the large Namut thermal imaging sight mounted on the left side of the turret. This sight is a derivative of the type used on the Leclerc main battle tank which the UAE also operates.

A UAE BMP-3 on the Maqatra firing range of the UAE Army. The crew in this vehicle is a Russian demonstration crew with blue coveralls. The UAE has had some problems with the BMP-3 in sand, and the Russians had to develop an additional ring for the drive sprocket to prevent the tracks from shedding.

A good overview of a UAE BMP-3 shows some of the other changes on the late production batches including the additional stowage bin on the turret rear, and the two stowage boxes on the hull rear. The UAE Army vehicles are often fitted with an externally mounted fire extinguisher on the hull side.

A good overview of a UAE BMP-3 sitting next to a Russian T-80U at Maqatra. The aluminum can on the back deck is the stub casing of a 100mm ammunition round that has been ejected from the gun through the turret hatch.

A nice study of the BMP-3 in motion as a UAE BMP-3 prepares to engage targets at the UAE desert firing range at Maqatra.

The UAE has contributed a mechanized infantry detachment to the KFOR peacekeeping detachment in Kosovo in 2000. The vehicles have been repainted in an approximation of the NATO camouflage colors, certainly better suited to the terrain than their normal sand color. (Yves Debay)

A UAE KFOR BMP-3 serving as a gate-guard at a peace-keeping base with a VBL light armored car passing by. This view shows the typical KFOR markings used by the UAE BMP-3 including the chevron marking. On the front is the UAE flag and the normal registration number on a black rectangle. (Yves Debay)

Another view of the UAE KFOR detachment. Moving from behind the BMP-3 is a VBL light armored car. (Yves Debay)

Aside from the KFOR markings, the UAE BMP-3 also carry tactical markings, such as this squadron triangle. Like many of the Gulf armies, the UAE Army relies on British style tactical marking practices. (Yves Debay)

This provides another clear view of the recent BMP-3 modifications such as the turret stowage bins. (Yves Debay)

The BMP-3 in the KFOR detachment have had some modifications, notably the addition of stowage racks on the sides and behind the turret for crew gear. (Yves Debay)

The UAE soldiers have also been deployed with battledress more appropriate to the European climate, instead of the sand colored uniforms seen when deployed back home in the Gulf region. (Yves Debay)

Cyprus has been one of the export customers for the BMP-3 as seen here during a parade in Nicosia. The Greek flag is carried as identification on the turret side as well as on the registration plate at front and rear. (Stelios Markides)

Cyprus has received 43 BMP-3 from Russia. This close-up of the bow shows the typical markings pattern including the usual yellow bridging circle. (Stelios Markides)

The Cypriot BMP-3 are in the standard configuration without the additional night sight seen on the UAE vehicles. The camouflage pattern is essentially the same as on the South Korean vehicles and may be intended as a standard export scheme. (Stelios Markides)

This rearview shows the markings on the Cypriot BMP-3 including the double-headed eagle of the Cypriot forces. (Stelios Markides)

South Korea obtained 30 BMP-3 vehicles as part of a method to retire old Soviet debt, along with some T-80U tanks. (Seung-berm Arn)

The South Korean BMP-3 are used by the 90th Mechanized Infantry Battalion, primarily in a training and evaluation role. (Seung-berm Arn)

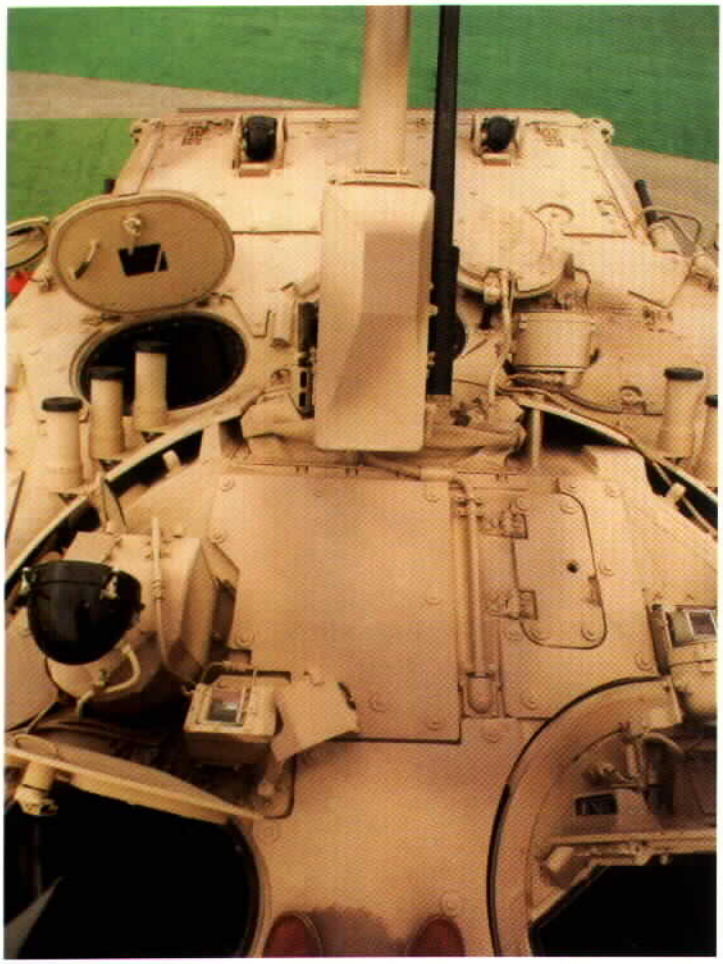
Another view of one of the South Korean BMP-3. (Seung-berm Arn)

Most of the South Korean BMP-3 are finished in a scheme of sand-gray, red-brown and green which appears to be a Russian export pattern. (Seung-berm Arn)

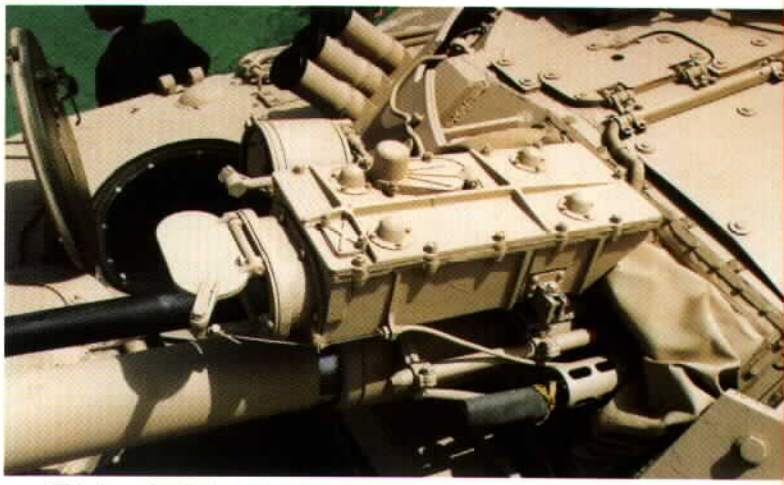
South Korea manufactures its own infantry fighting vehicle, the KIFV, so large scale acquisition of the BMP-3 is unlikely. (Seung-berm Arn)

The South Korean BMP-3 can be used for a variety of missions including their use as opposing forces during training exercises. (Seung-berm Arn)

# The BMP-3 in Detail

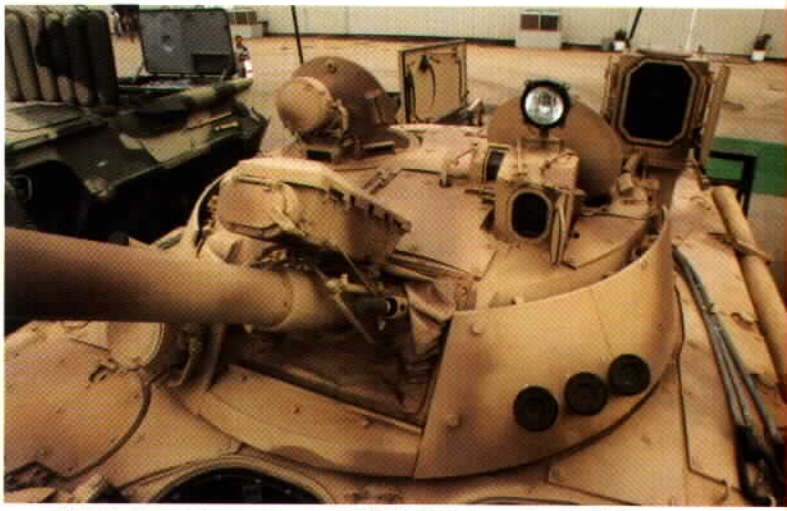


On the late production UAE BMP-3, there is an armored cover over the 1D16-2 laser range finder. To the lower left is the gunner's 1K13-2 day/night sight, and a smaller 1PZ-10 high elevation optical sight for engaging aerial targets.



This is a detail view of the 1D16-2 laser range finder fitted above the main gun. Below it is the co-axial 7.62mm 6P7 machine gun.

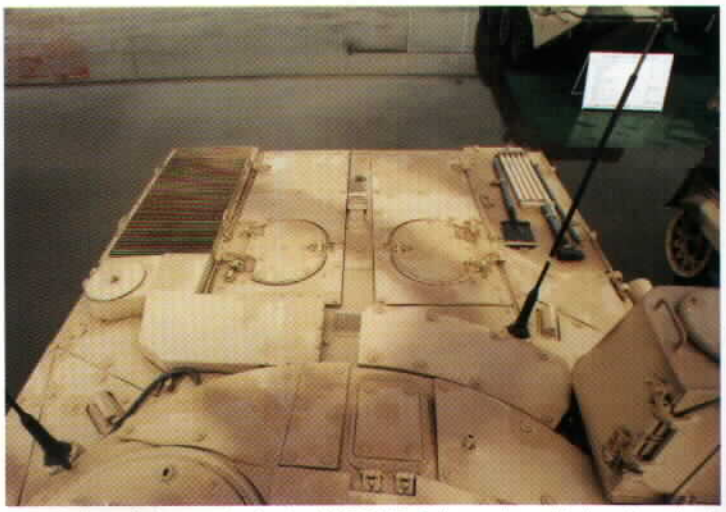
This rear view of the turret of a UAE BMP-3 shows the added stowage bin, the Namut thermal imaging sight, and the added roof appliqué armor.



A front view of the turret of a UAE BMP-3 shows the 1K13-2 gunner's sight and the Namut thermal imaging sight covers open. The BMP-3 turret uses a layer of steel appliqué armor over the front sides of the turret.

This is a detail view of the Namut thermal imaging sight added to the UAE vehicles. This sight is related to the type used in the UAE Army's Leclerc main battle tanks.

This is a close-up of the 1PZ-10 monocular periscopic sight with the sight cover open. This is used for firing the cannon at helicopters and other high angle targets.



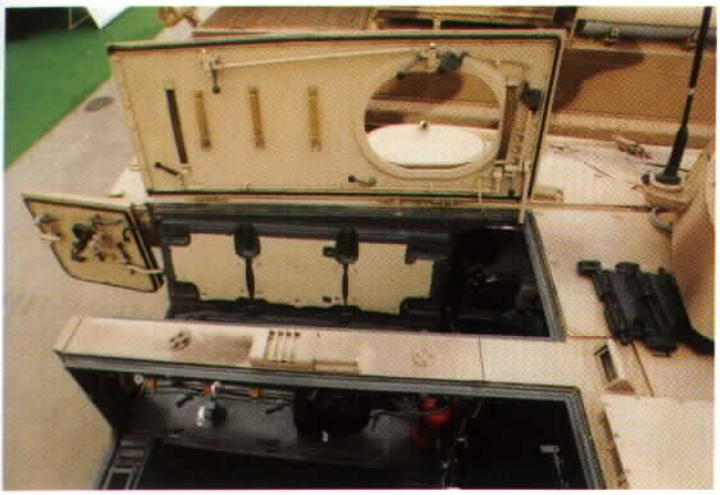
A view of the rear deck of a UAE BMP-3 shows the added roof appliqué as well as the full arrangement of tools on the rear deck.

This is a view looking into the rear compartment with the access doors open. The vehicle's UTD-29 engine is mounted under the floor. This is pretty much wasted space, as if the crew uses it for stowage, it interferes with entry and exit from the vehicle.

A view of a Russian BMP-3 from the rear with the engine access panel open shows how cramped the engine compartment is under the floor.

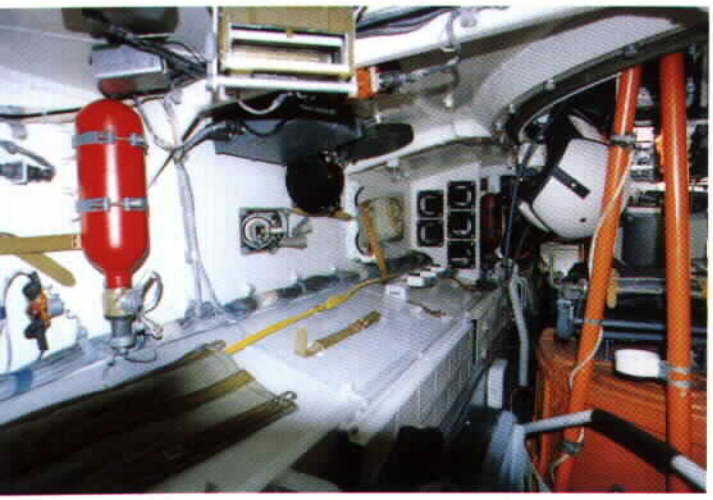
This shows the view of the left rear compartment with the doors open. This is a UAE vehicle, and it will be noted that it differs in color from other production batches.

This is a corresponding view of the rear compartment on the right hand side, looking into the vehicle.



This view of the rear compartment provides better detail of the large overhead door.

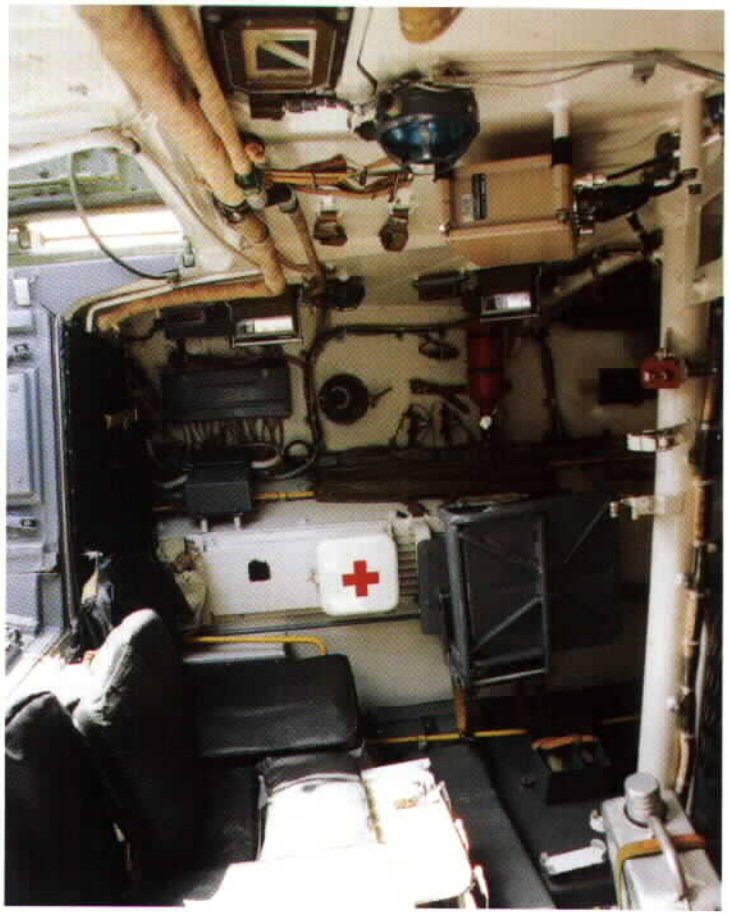
This is a view of the turret basket inside the BMP-3 taken from the rear of the vehicle as it appears when first crawling into the BMP-3 through the rear doors. The red/orange paint is typical of BMP-1/-2/-3 turret baskets, and is used to warn troops to keep their hands and equipment away from moving parts. The autoloader holds 22 rounds of ZOF17 and ZOF32 high explosive projectiles, while an additional 18 HE rounds and six 9M117 guided missiles are stored elsewhere in the hull.

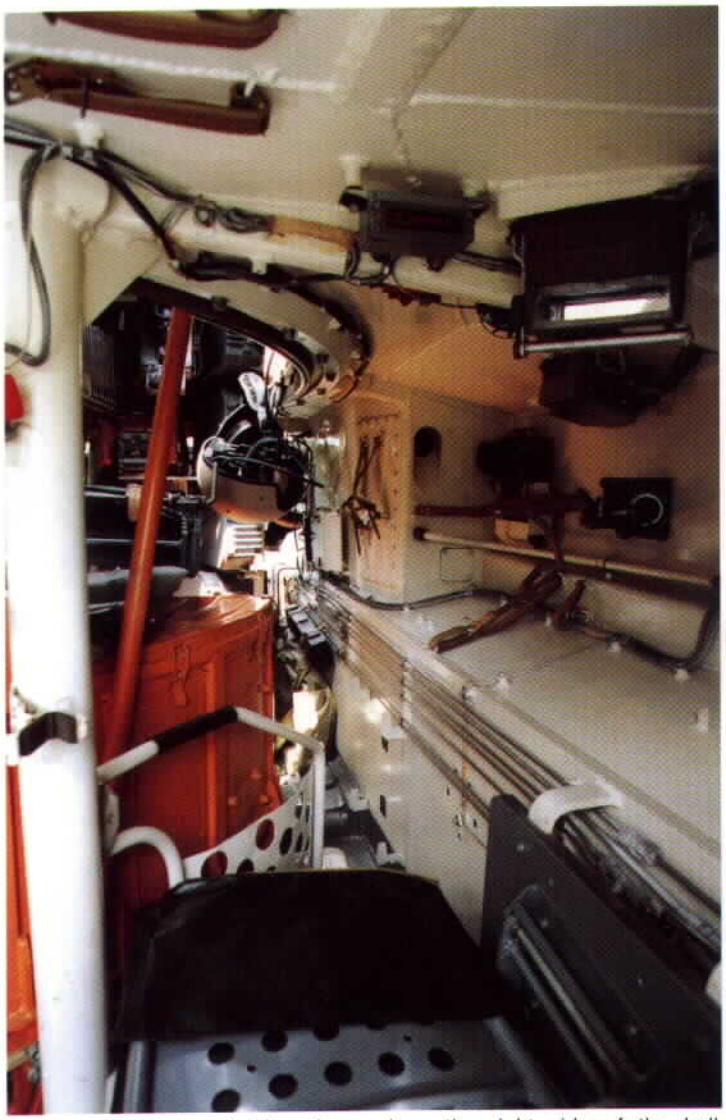


This is a view down along the space on the left side of the hull. There would normally be ammunition stowed in the forward area.

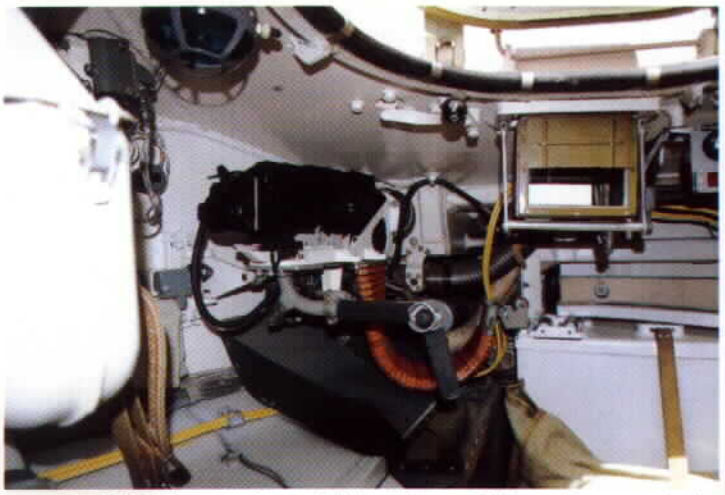
This is the reverse of the upper photo, taken from the right rear corner of the fighting compartment looking towards the left side with the infantry section seating in the middle.

This is a view from the left rear corner of the fighting compartment looking towards the right side, and showing the infantry section seating at the rear of the compartment. This area is fairly cramped, and the author was not very impressed with the crew accommodations!

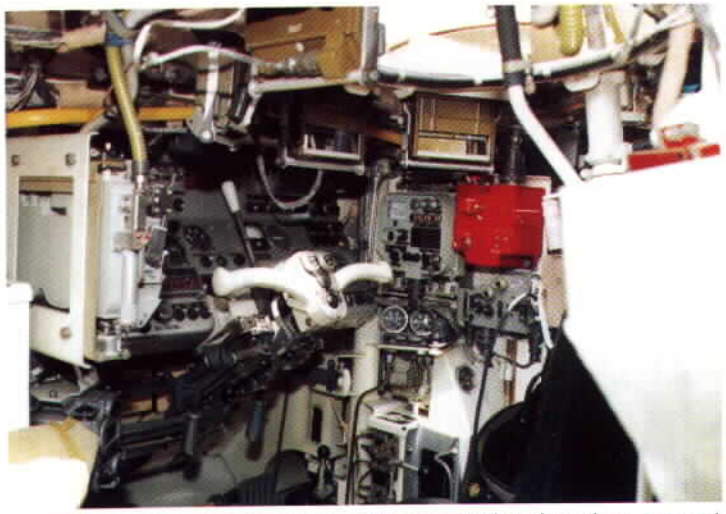




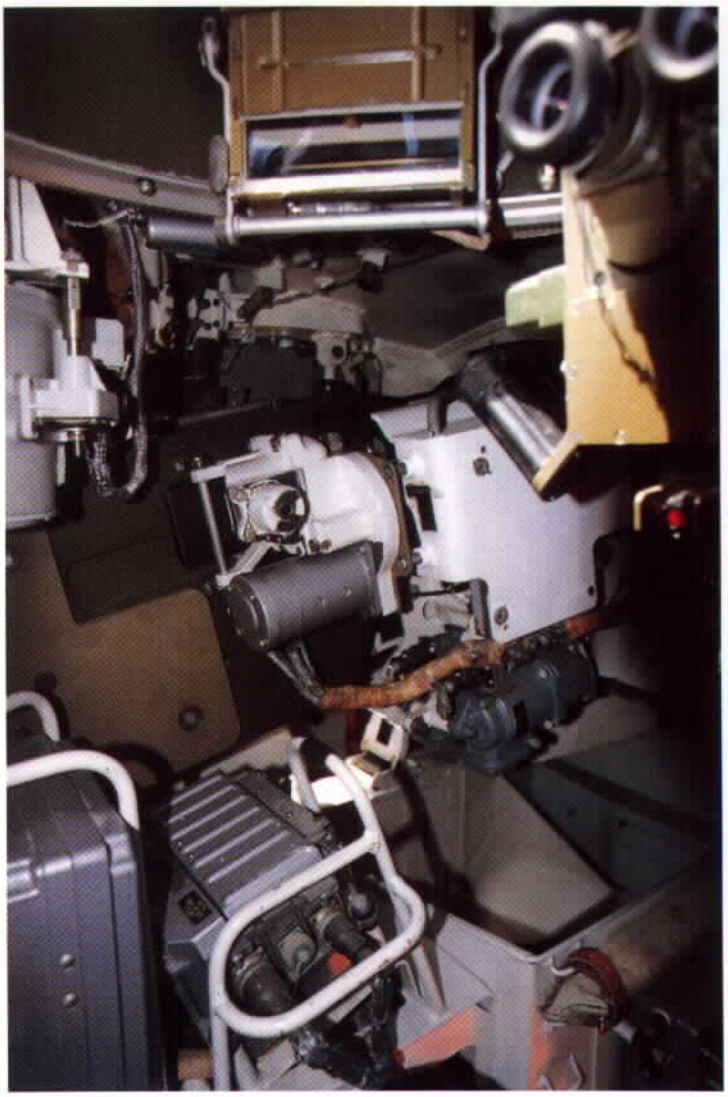
This is a view looking down along the right side of the hull compartment. The mounting in the right center is an attachment for a squad member's assault rifle for the firing port.



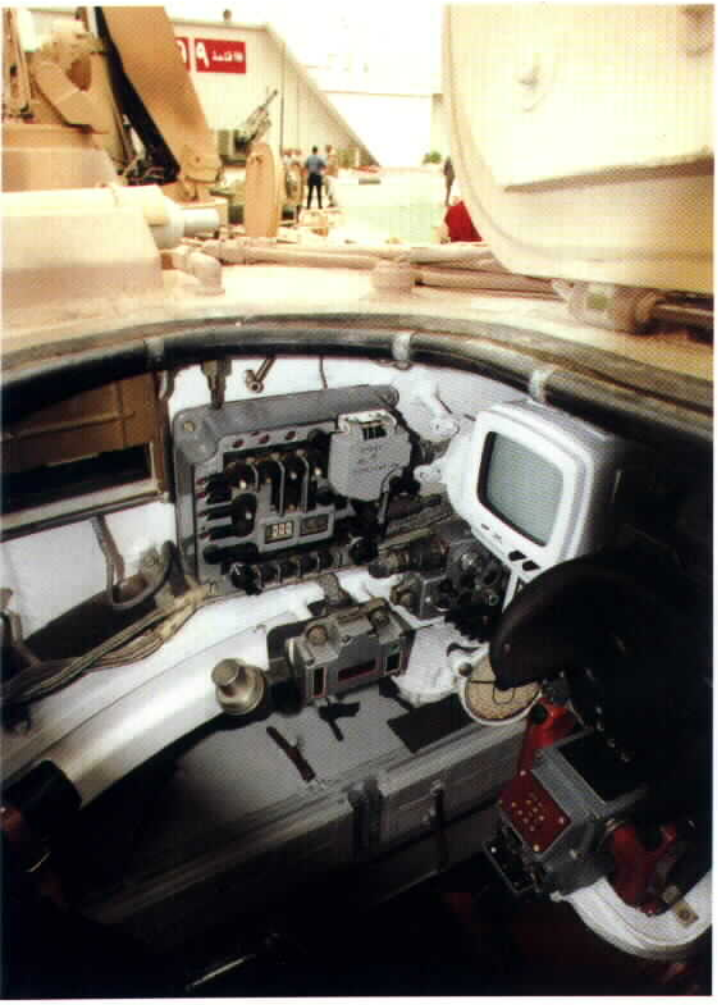
The BMP-3 has two forward firing 7.62mm PKT machine guns in the front hull corners and this is the one on the left hand side.



This provides a good sense of the complexity of modern armored vehicles, and shows the driver's station in the BMP-3. It uses a steering yoke like the earlier BMP-1/-2.



This is the view inside the turret from the commander's seat with the 2A70 gun breech evident in the center.



This is the view into the gunner's station on the left side of the turret. The TV monitor for the Namut thermal imaging sight is very evident in this view.

A useful detail view of the rear portion of the suspension on the right side of a standard production Russian vehicle. This gives a good view of the track, the drive sprocket, and the suspension arms.

This is a useful comparison on the detail differences between the UAE vehicles and the early production Russian vehicles. The UAE vehicles have a large ring added around the drive sprocket to prevent track shedding, a recurrent problem in the local sandy conditions. Also note the use of improved, reinforced bump stops on the hull side.

This is a detail view of the forward hull PKT machine gun. The plastic cover for the gun can be seen below.

The BMP-3 has an elaborate bow plane which is locked forward during swimming to prevent waves washing over the driver's hatch.

# The Marine BMP-3F

The BMP-3F is a new variant of the BMP-3 intended for the Russian Naval Infantry, their equivalent of the Marines. It is also being offered to the UAE, which has a requirement for a vehicle for coastal patrol. It is designed to have better floatation and water handling features than the basic BMP-3 to enable it to be landed in high surf.

This side-view of the BMP-3F shows some of the changes including the more elaborate snorkel stowed behind the turret, and the added splash strip on the turret to prevent waves from spilling over the turret roof. Note also that it is fitted with the rings on the drive sprocket, a change introduced by the UAE.

One small change on the BMP-3F is the use of a new and smaller infrared searchlight.

This view of the left side of the BMP-3F shows that it is otherwise very similar in appearance to the normal BMP-3.

A BMP-3F on display at one of the proving grounds outside Nizhni Tagil in 2000. The flag is from the Kurganmashzavod which manufactures this vehicle.

The BMP-3F after having emerged from a water obstacle, with the engine air intake snorkel in raised position. In ocean operation, the larger snorkel owed on the turret would be fitted in this location.

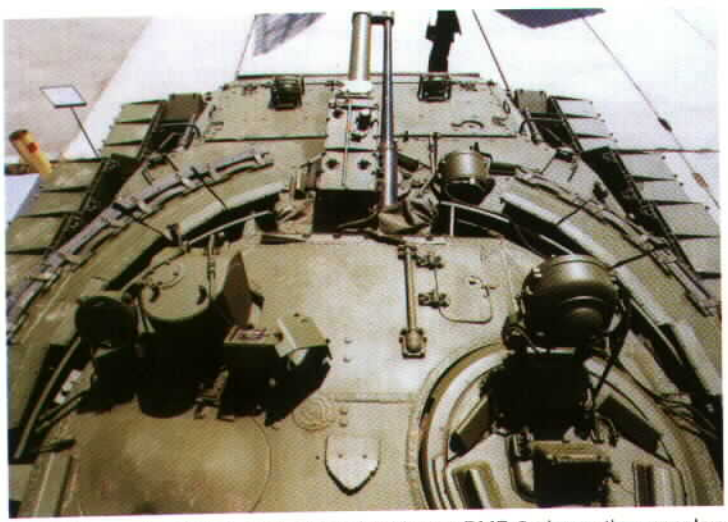
# The Reactive Armor BMP-3

In the late 1990s, the UAE Army put out a requirement for a reactive armor package for its BMP-3s. Contenders included French, Russian, and other entrants. In 1999, the UAE selected a Russian package developed by NII Stali. This is the first public display of the pilot of this system, painted in Russian Army colors.

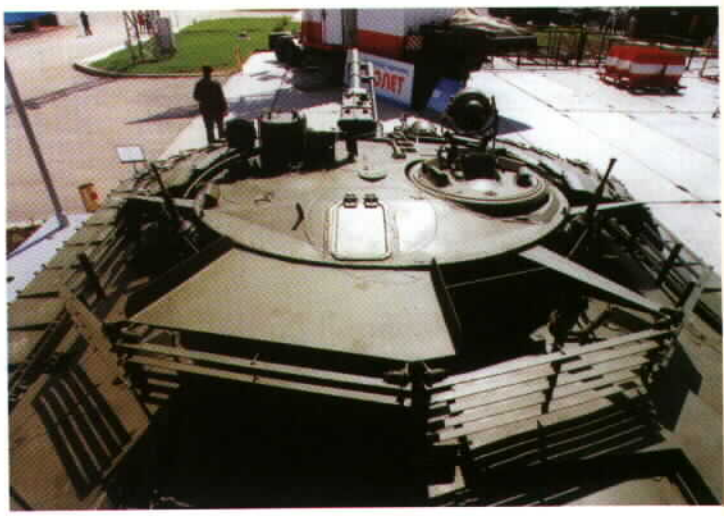
The problem of designing reactive armor for the BMP-3 is that it must be buffered to prevent it from damaging the hull when it detonates, and it must have added buoyancy so as not to sink the vehicle. As a result, the reactive armor boxes on this version are quite large.

A view of the left side of the Reactive Armor BMP-3, painted with the traditional Russian double-headed eagle.

The rear sides of the vehicle are protected by this grill armor, first tested in combat in Afghanistan. It is designed to defeat RPG rocket grenades.

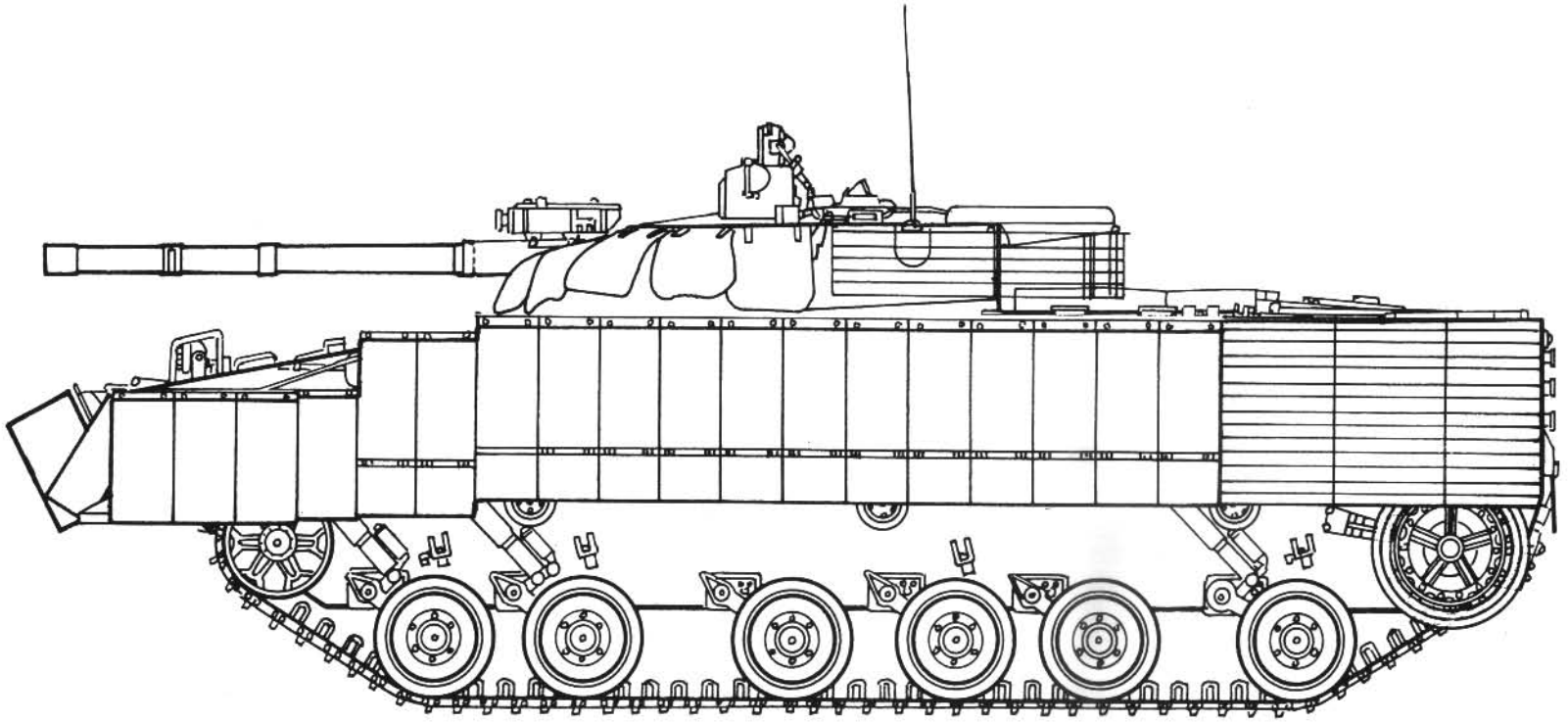


This overhead view of the Reactive Armor BMP-3 shows the complex layout of the added boxes.



The rear of the turret is protected by more grill armor instead of explosive reactive armor.

# 1/35 BMP-3 with ERA



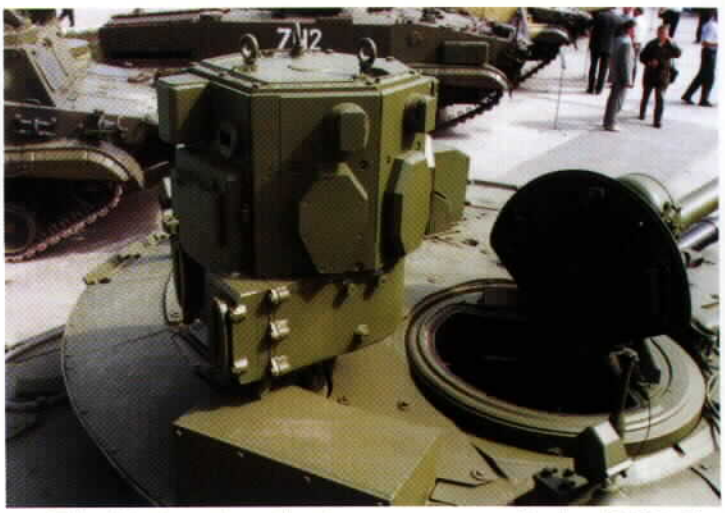
# The BMP-3M and Arena Active Defense System

One of the contenders for the UAE BMP-3 upgrade was the Arena active defense system, which was fitted to the BMP-3M pilot. Arena consists of a radar sensor seen on top of the turret, which launches an explosive panel from the ring around the turret. At a predetermined height, the explosive panel detonates, destroying incoming anti-tank missiles with a spray of fragments.

This is another example of the Arena ADS, fitted to a Russian BMP-3.

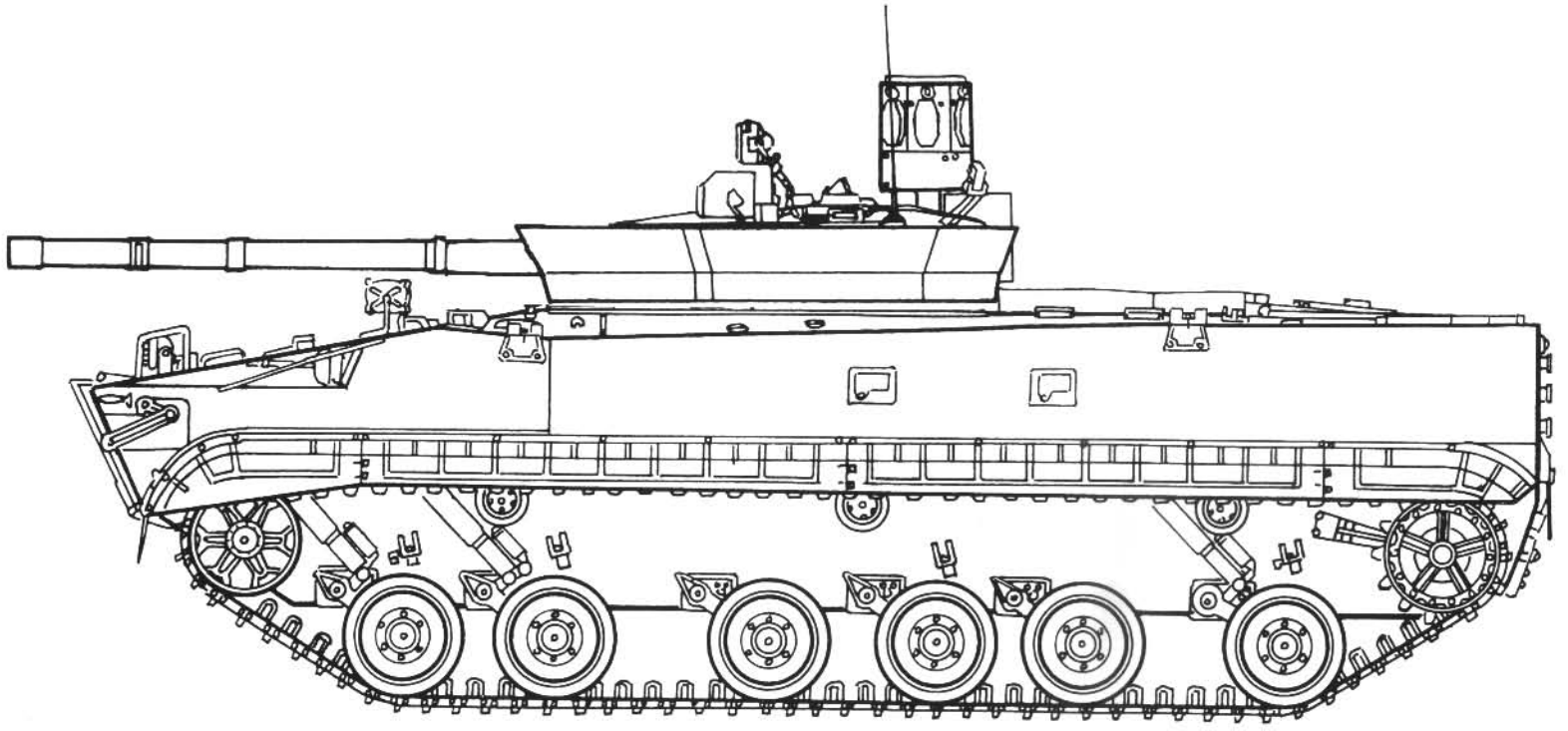
This overhead of the BMP-3 turret with Arena shows the explosive panels stowed vertically around the turret sides.

The Arena's radar sensor detects incoming anti-tank missiles, and then an onboard computer decides when to launch a defensive explosive.



This side view shows the Arena sensor on a Russian BMP-3. The sensor covers five sides.

# 1/35 BMP-3 with Arena ADS



The BMP-3M incorporates the more powerful 660 hp UTD-32 engine, evident only from the modified exhaust port on the right rear side.

The BMP-3M may eventually be fitted with a new welded turret, shown here in prototype form at an exhibition for the UAE Army in 1998.

## The BRM-3 Rys Reconnaissance Vehicle

One of the less often seen variants of the BMP-3 family is the BRM-3 Rys (Fox). This is a scout version of the vehicle, and lacks the 100mm gun. It is manufactured at the Rubtsovsk Machine Building Plant in the Altai region of Russia rather than the Kurgan plant that manufactures most BMP-3.

Another view of a BRM-3, this time on display in the UAE in hopes of attracting export interest. The BRM-3 is intended to replace a variety of scout vehicles including the PT-76 light tank; PRP-3, and PRP-4 artillery scouts and the BRM-1 reconnaissance vehicle. This one is finished in the standard Russian camouflage scheme.

A BRM-3 on display in Russia near Nizhni-Tagil with a tactical number marking. There are very few of these vehicles in service, mainly in Siberia. This vehicle does not have the front corner machine guns like the normal BMP-3, but has an additional gun port on the front panel.

One of the few BRM-3 in service, on display in the Siberian military district near Omsk. The paint scheme is also a local variant, consisting of sand-green, gray and black over the usual dark green. Although superficially similar to the BMP-3, the BRM-3 is almost completely different from the fender line upwards. The BRM-3 uses a higher hull, and a completely different turret.

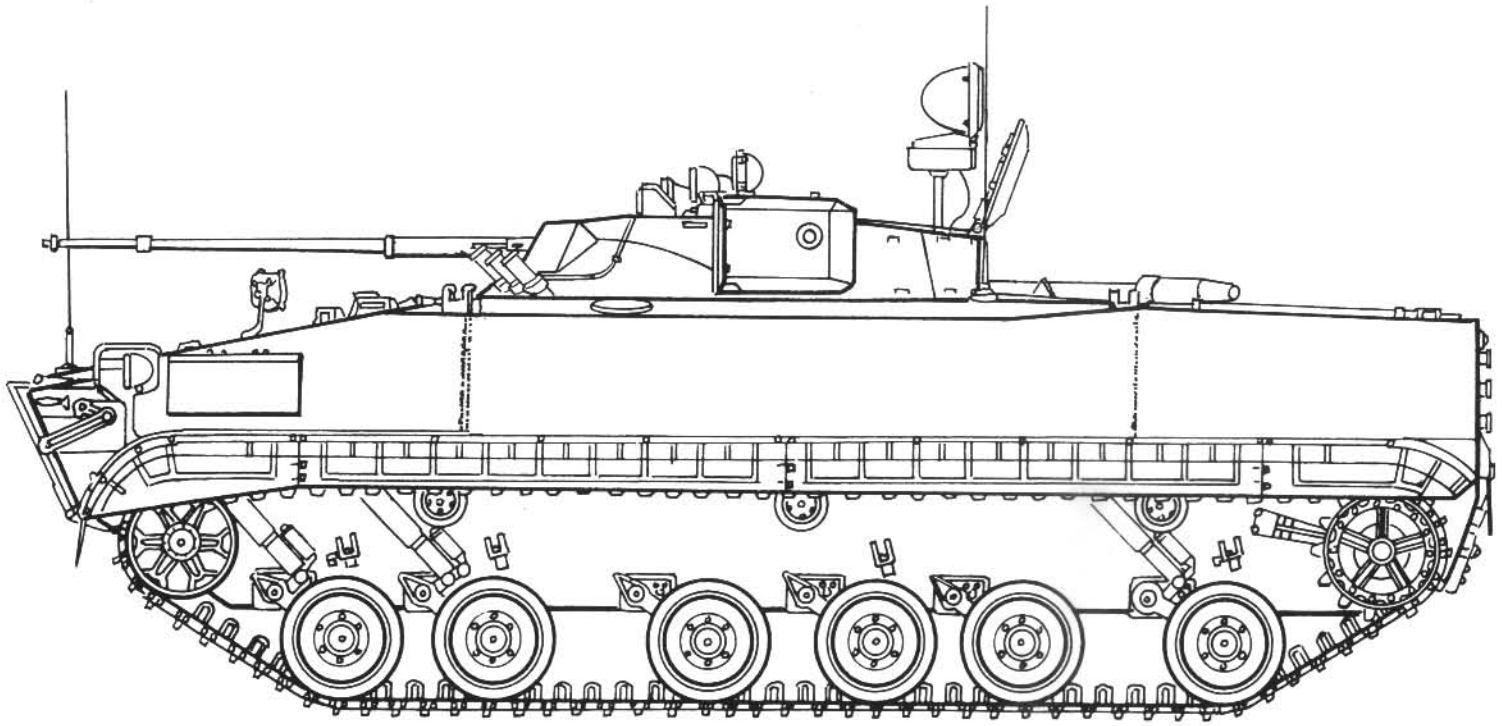
This rear view of the Omsk BRM-3 shows some of the other changes including the revised rear doors, and the placement of the unditching beam in the rear rather than the left side. To date, the vehicle has not been exported.

An overhead view of the Omsk BRM-3 shows that it lacks the opening doors on the rear deck. The tube on the rear deck is for stowing a long radio antenna.

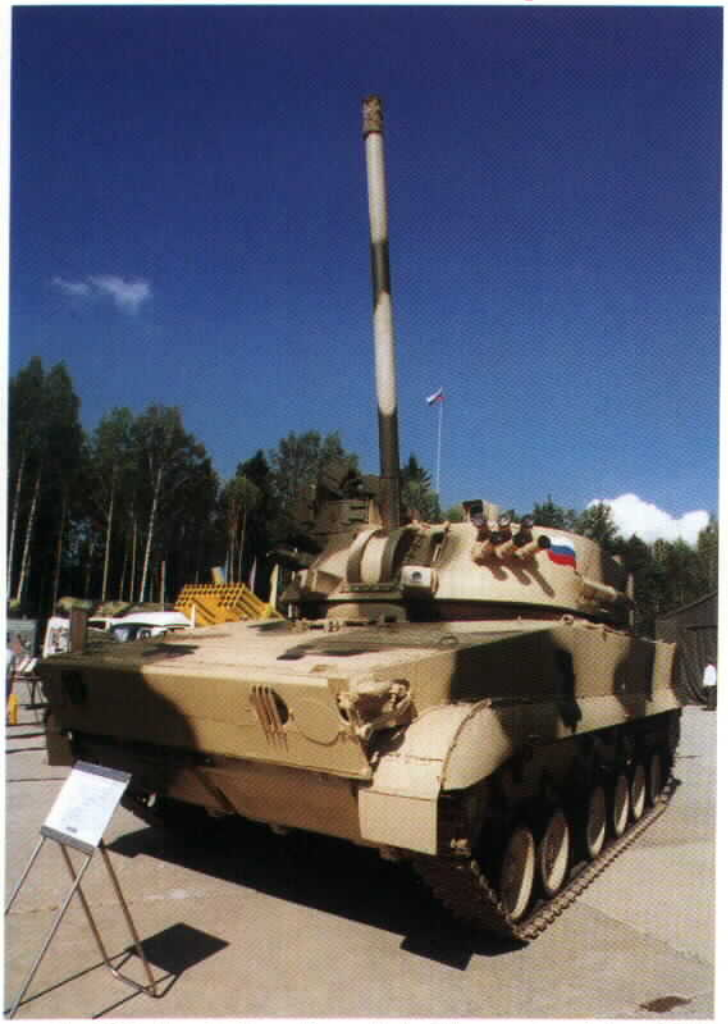
The two boxes on either side of the turret contain electro-optical sensors including the 1PN61 image intensification night vision sensor with a laser illuminator, and the 1PN71 is a thermal night vision sight. The Kredo-1M battlefield surveillance radar is erected.

This is a close-up of the RL-133-1 Kredo-1M battlefield surveillance radar. When not in use, it is folded down inside the turret. It has a detection range of 8,000-10,000m against a tank, and 3,000-4,000m against personnel.

# 1/35 BRM-3 Rys



# 2S31 Vena 120mm Self-Propelled Mortar



The 2S31 Vena is the self-propelled artillery version of the BMP-3 family. It is armed with the 2A80 120mm breech-loaded mortar. As is evident in this view, the gun barrel can be elevated to a high angle compared to more conventional artillery.

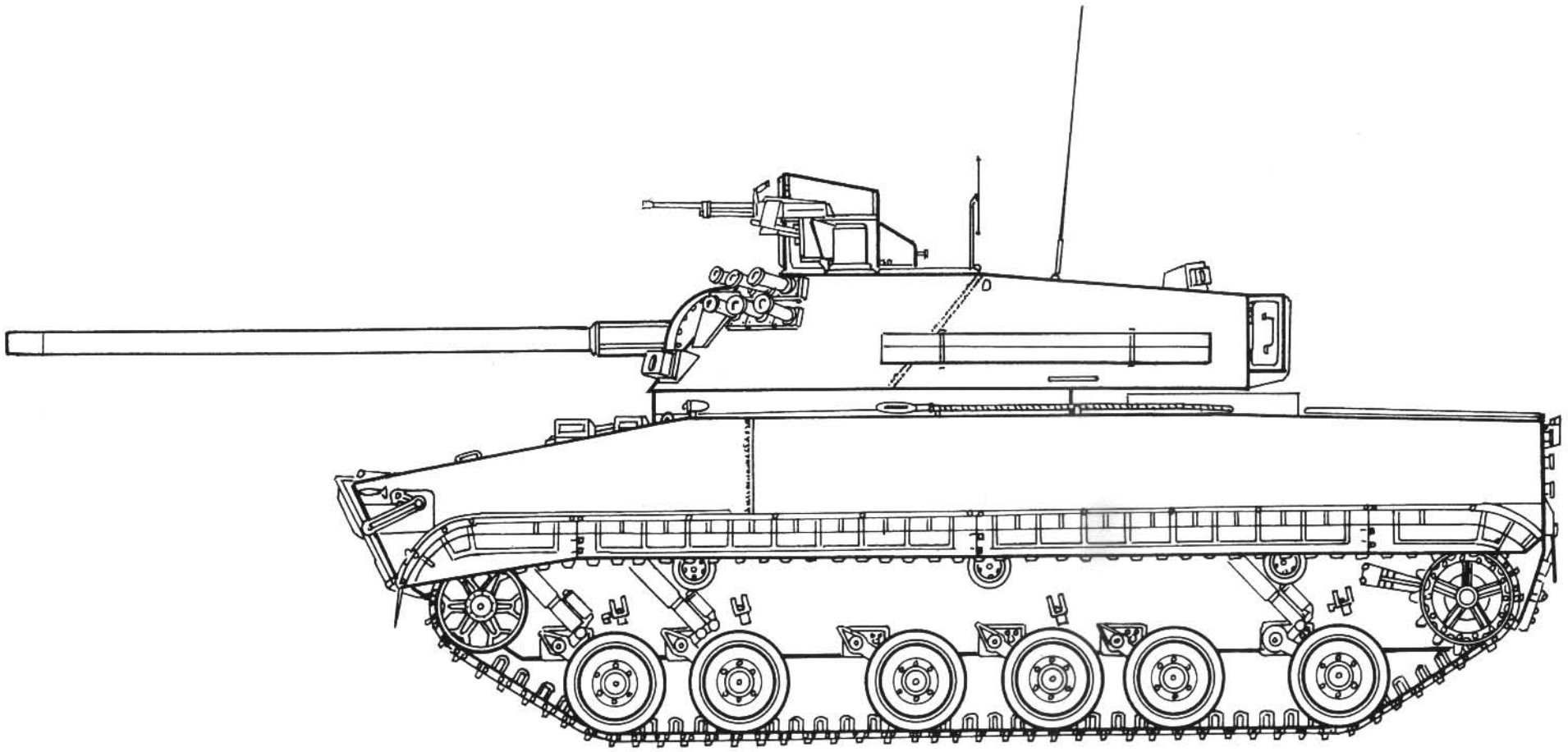
The 2S31 is fitted with a large electro-optical sensor package on the right roof of the turret. This is used both for observation and for laser designating targets when using guided projectiles like the Kitolov. The two small boxes on either side of the gun are laser detectors, intended to warn the crew if the vehicle is targeted in which case they can trigger the smoke dispensers.

The 2S31 Vena was first shown in 1997 in the UAE in hopes of winning a launch customer in the Mid East. The Vena is designed to provide the firepower of a conventional 152mm self-propelled howitzer but on a much lighter chassis.

A rear view of a 2S31 on display near Nizhni-Tagil. As in the case of other variants of the BMP-3, it is mounted on the Universal Chassis hull which lacks the troop compartment access doors.

A 2S31 Vena during firing trials at an artillery range near Nizhni-Tagil in 2000. The 120mm weapon on the Vena is operated with a computerized fire control system. This allows the weapon to be automatically traversed and elevated based on target data inputs entered earlier into the computer.

# 1/35 2S31 Vena



An overhead view of the 2S31 shows the simple engine deck which lacks the large access doors of the BMP-3. The 2S31 has a standard ammunition stowage of 70 rounds including 10 rounds of Kitolov semi-active laser guided projectiles. A total of 36 ready rounds are available in two 18-round revolver racks at the rear of the turret in a bustle.

This is a detail view of the gunner's sights with the armored cover open. They consist of a day/night 1P51 sighting system with a 1D22S laser range finder/designator. The Tucha smoke mortars are designed for vehicle self-defense.

## BMP-3 Missile Tank Destroyers

Several missile tank destroyer variants of the BMP-3 have been designed, though none are yet in service. The 9P162 is a tank destroyer version of the BMP-3 armed with the Kornet anti-tank missile. The launcher assembly retracts into the hull, giving it the appearance of a turretless vehicle when combat deployed.

A rear view of the 9P162 Kornet tank destroyer developed at the Volsk Mechanical Plant in the Saratov region of Russia. The Kornet missile comes in two versions, with a shaped-charge anti-tank warhead or with a fuel air explosive (thermobaric) enhanced blast warhead for attacking bunkers and other soft targets. It provides an interesting illustration of the Russian view of the ATGM system as a precision support weapon, not limited to the anti-tank role, but suitable for use against a wide range of pin-point targets. The Kornet warhead is the most potent of any existing Russian ATGM.

A close-up of the revolving turret of the 9P162 Kornet tank destroyer. The two launch stations are automatically reloaded through the doors behind them. The vehicle contains sixteen missile reloads.

A close-up of the gunner's sight on the 9P162 Kornet tank destroyer. It traverses along with the turret.

An overhead view of the 9P162 Kornet tank destroyer shows its general features. Below the turret is a twelve round revolver system for rapid reloading of the missiles.

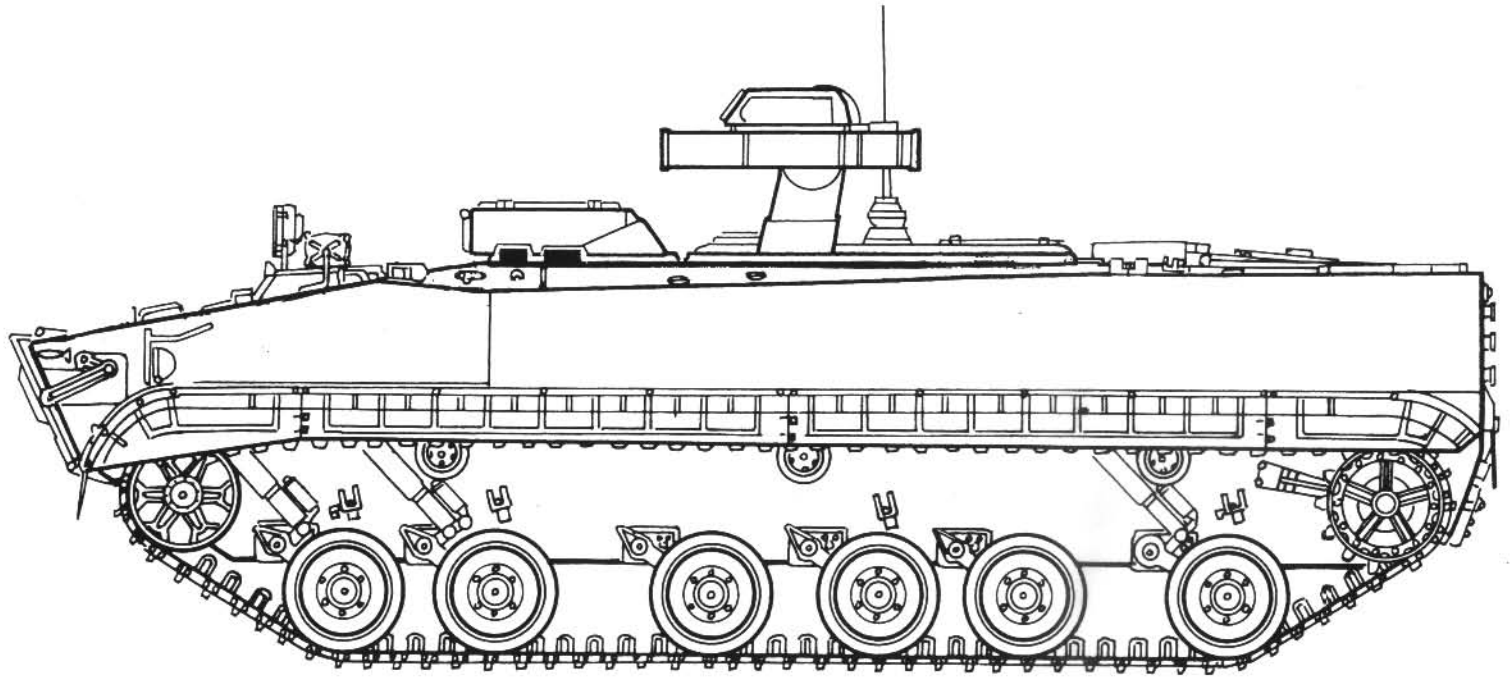
The competitor to the Kornet tank destroyer is the 9P157-2 Krizantema tank destroyer. With the collapse of the Russian defense budget, Russian firms are much more dependent on export sales for survival. So now, Russia often produces weapons for the export market that are not sold to the Russian Aarmy. This vehicle is highly automated and has a crew of only two: a driver and a gunner.

The launcher and radar guidance package on the 9P157-2 Krizantema fold inside the vehicle when not in use. The device on the hull side is a reloading system which allows two men to reload the long missile tubes without the need for a crane or other specialized equipment.

Another view of the 9P157-2 Krizantema tank destroyer with the missile tubes elevated. This missile was designed specifically to destroy advanced main battle tanks like the M1 Abrams that are protected by composite armor. It has a range of 5 kilometers, a speed of 170 m/s, and its 150mm warhead can penetrate up to 800mm of armor.

This close-up shows the twin launch tubes on the Krizantema launcher. The vehicle stows a total of 15 missiles in its reload cell and the launcher is reloaded automatically. Behind it is the radar sensor used both to acquire targets at long range and to guide the missile.

# 1/35 9P162 Kornet

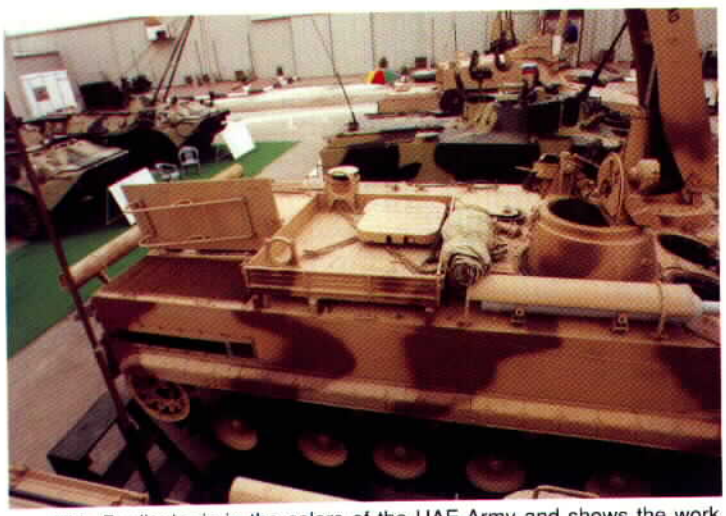


# BMP-3 Engineer Vehicles

The BMP-3 hull is used on an expanding range of armored vehicles. As a result, the Kurgan plant developed its Universal Chassis which forms the basis for most of these vehicles other than the basic infantry vehicle.

This rear view of the BREM-L shows the standard Russian pattern for such vehicles including a small work platform for stowing tools, a fully-rotatable 5-ton crane, and a winch with 20 metric ton capacity.

The BREM-L Beglianka armored recovery vehicle was the first BMP-3 variant exported. It is already in use by the UAE and Cyprus. They are a light armored recovery and maintenance vehicle intended to service the BMP-3.



This Beglianka is in the colors of the UAE Army and shows the work area on the rear deck including the small work station and the acetylene tank for welding.

This view shows the forward area of the Beglianka including the crew commander's cupola. The vehicle can be armed with a remote control PKT 7.62mm machine gun on the commander's station, though it is not fitted here.

The left side deck on the Beglianka is plain since the crane rests here when not in use. Note the six smoke mortars mounted along the centerline of the vehicle towards the front.

This is a detail view of the dozer blade fitted to the front of the Beglianka. Although it can be used for normal bulldozer operations, it is most often used to anchor the vehicle when using the winch to recover bogged-down vehicles.

This is the 5 ton crane used on the BREM-L for recovery and maintenance work. It is typically used to lift out engines, transmissions and other components for repair or replacement.

The BREM-L Beglianka has been sold to a number of export customers, including Cyprus. (Stelios Markides)

This side view of a Cypriot BREM-L Beglianka clearly shows the camouflage pattern on these vehicles. The Beglianka is the standard technical support vehicle for BMP-3 units. (Stelios Markides)

A rear view of a Cypriot BREM-L Beglianka showing the Cypriot forces marking on the rear and the registration plate.

One of the rare pieces of equipment developed for the BMP vehicles is the KMT-10 mine rake. Since the BMP is too light to push a mine roller, this configuration is used to dig in and push mines out of the way.

This is the DZM Vostorg combat engineer vehicle developed at the Murom plant. It includes excavating equipment and other devices for combat engineers including a dozer blade.

Another view of the Vostorg from the side, showing its excavating bucket in the folded position. In contrast to the Beglianka which is a repair vehicle, the Vostorg is intended for combat engineer operations.

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